

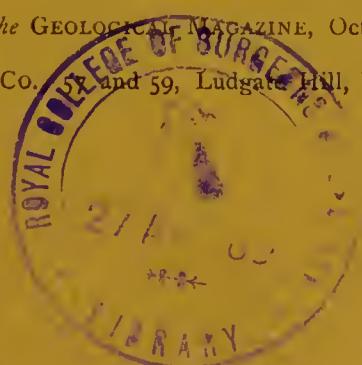
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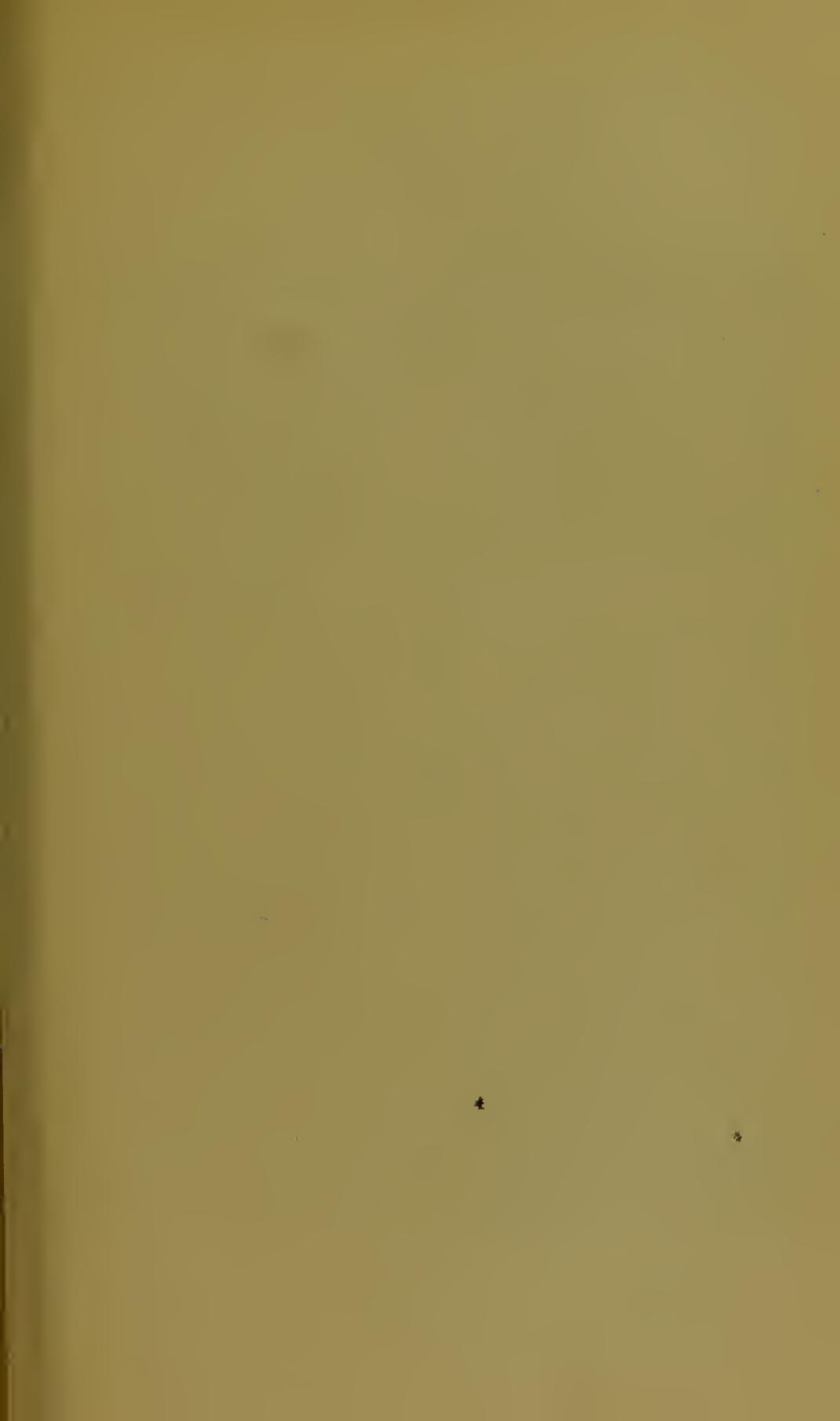
THE  
LONDON & BERLIN ARCHÆOPTERYX.

[Extracted from the GEOLOGICAL MAGAZINE, October, 1881.]

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ON SOME DIFFERENCES BETWEEN THE LONDON AND BERLIN  
SPECIMENS REFERRED TO *ARCHÆOPTERYX*.

By PROF. H. G. SEELEY, F.R.S., etc.

(PLATE XII.)

IN drawing attention to some characters of the Berlin *Archæopteryx*, it should be stated that I only know that specimen from a photograph taken before the slab was fully developed; and therefore while I believe the following results to be trustworthy as indicating specific and it may be generic differences, it is possible they may hereafter be slightly modified.

As stated by Vogt, the Berlin slab is  $\frac{1}{5}$ th smaller than the London slab; assuming the photograph to be of natural size, the following measurements may demonstrate the nature of the relation between the two specimens. The femur measures in the Berlin slab 4.8 centim.; in the London slab 6 centim., so that the London specimen is  $\frac{1}{5}$ th longer. The tibia in the Berlin slab measures 6.8 cm.; in the London slab it is 8 cm. Therefore in the latter the femur is  $\frac{3}{4}$ ths the length of the tibia; but if this proportion obtained in the Berlin specimen, the femur would have measured 5.1 cm.: hence the second specimen is slightly longer-legged. In the metatarsus the difference is nearly  $\frac{1}{5}$ th, for the Berlin animal measures 3.5 cm., and the London type 4.4 cm. The digits of the Berlin specimen measure respectively 1.5; 2.9; 3.1 cms.; the measurements in the London specimen are 1.7; 3.5; and 4.5 cms.; so that the longest digit of the London slab is more than a third longer than the corresponding digit of the Berlin slab. Hence in the latter animal the foot is relatively shorter and the drumstick relatively longer.

In the fore-limb the Berlin humerus measures 5.9 cm., the London humerus 7 cm.; the difference is between a sixth and a seventh. The Berlin ulna measures 5.1 cm.; the London ulna 6.7 cm.; the difference is a little less than a fourth, but while the Berlin humerus is about a seventh longer than the ulna, the London humerus is only about a twenty-third longer than the ulna. This difference is more marked than that between the tibia and femur, and shows that the fore-arm was relatively longer in the Berlin animal. The difference in the metacarpus is about one-fifth, the Berlin measurement being 2.7 cm., the London measurement 3.4 cm. Only two digits can be

compared; in the London slab they measure 2.5 cm. and 2.9 cm.; in the Berlin slab 1.7 and 2.8, but the longest Berlin digit is 4.3 cm.; so that notwithstanding its smaller size the Berlin animal appears to have had digits as long as the London specimen. The Berlin scapula measures 4 cm. and may be imperfect; the London scapula is 4.2 cm. The London ilium is 4.3 cm. long, in the Berlin slab it does not appear to exceed 3 cm. The ribs appear to be longer in the Berlin slab, some measuring 4.8 cm., while the longest in the London slab is 3.7 cm.

The Berlin tail measures 16.5 cm., and appears to include 21 vertebrae; the London tail measures 20.8 cm., and appears to include 23 vertebrae, of which the first 9 have transverse processes. The London animal probably had 5 sacral and 8 dorsal vertebrae, with a length of 8.5 cm., though number and length are uncertain. In the Berlin animal the length of this region is 8.5 cm. Vogt counts 10 in the back. The neck is imperfect in the London slab, the vertebrae lie in curve, five at least are preserved; a centrum measures 1 cm. In the Berlin slab the neck measures about 6.8 cm. Vogt estimates 8 vertebrae, but there are probably more. The head of the London animal as preserved measures 4 cm. in length; the Berlin head to the occipital articulation is 4.7 cm., and to the limit of the occipital crest about 6.1 cm. These differences are supported by details in the forms of the bones, which also prove the species to be distinct.